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TECHNOLOGY JUNE 14, 1952

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Albino Kangaroo

See Page 377

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MEDICINE

Test Tells Alcoholic

Answers to 20 questions will reveal your dependence on drink. "Yes" to three or more of these shows that you are definitely an alcoholic.

► A 20-QUESTION test you can give yourself will tell you whether or not you are an alcoholic, Dr. Robert V. Seliger, director of the National Committee on Alcohol Hygiene, Baltimore says.

Here are the questions:

1. Do you lose time from work due to drinking?
2. Is drinking making your home life unhappy?
3. Do you drink because you are shy with other people?
4. Is drinking affecting your reputation?
5. Have you ever felt remorse after drinking?
6. Have you gotten into financial difficulties as a result of drinking?
7. Do you turn to lower companions and an inferior environment when drinking?
8. Does your drinking make you careless of your family's welfare?
9. Has your ambition decreased since drinking?
10. Do you crave a drink at a definite time daily?
11. Do you want a drink the next morning?
12. Does drinking cause you to have difficulty in sleeping?
13. Has your efficiency decreased since drinking?
14. Is drinking jeopardizing your job or business?
15. Do you drink to escape from worries or troubles?
16. Do you drink alone?
17. Have you ever had a complete loss of memory as a result of drinking?
18. Has your physician ever treated you for drinking?
19. Do you drink to build up your self-confidence?
20. Have you ever been to a hospital or institution on account of drinking?

If you have answered yes to any one of the questions there is a definite warning that you may be an alcoholic. If you have answered yes to any two, the chances are that you are an alcoholic. If you have answered yes to three or more, you are definitely an alcoholic.

Alcoholics must really want treatment or it will not be effective.

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MARINE BIOLOGY

Eat Oysters Year 'Round

► OYSTERS ARE just as good in the four "R-less" months of May, June, July and August as during the rest of the year. In fact they are at their best in May.

This is the opinion of Dr. Thurlow C. Nelson, professor of zoology at Rutgers University, who appeared with Watson Davis, director of SCIENCE SERVICE, on the CBS Radio Network's "Adventures in Science" program.

Dr. Nelson, as his father before him, directs the oyster research project of the university. He praised the oyster as being one of the richest foods in vitamins and salts. They are produced at the rate of 90,000,000 pounds a year, he told Mr. Davis.

In these modern days, he pointed out, oysters are produced by methods quite similar to commercial farming. The "farms" extend along the Atlantic coast.

The legend about "R-less" months grew up with European colonists who brought to America their unpleasant experience in eating European oysters during May, June, July and August. European oysters are miserable at this time of year, Dr. Nelson

told Mr. Davis, because the tiny baby oysters in Europe live in the shells and make the oysters gritty.

An oyster feeds himself by pumping as many as 48 quarts of water through his body each day, straining out the algae, tiny plants which make up most of his food. The oyster's pumping apparatus also casts eggs and sperm into the surrounding water, at the proper time of the year, thus insuring future generations for American tables and fish-houses.

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MEDICINE

Resistance of Cells Clue to Cancer Relapses

► GETTING RID of cancer sometimes presents some of the same problems found in getting rid of disease-carrying mosquitoes or flies.

Drugs which kill most cells in a cancerous growth or in leukemia sometimes are resisted by a small minority of the cells. In

fact, it has been discovered, they thrive on the ordinarily lethal doses of the drugs. In somewhat the same way, strains of flies or mosquitoes which are resistant to DDT or other insecticides are developed.

Scientists at the Southern Research Institute, Birmingham, Ala., believe this may be one of the clues as to why relapses occur in cancer. Some drugs, the scientists found, may kill 9,999 out of every 10,000 cancer cells in patients, but the few survivors multiply rapidly and within weeks develop tremendous colonies which are impervious to the effects of the drugs. In two strains of these cells, when the drug is withdrawn, the resistant cancer cells do not multiply so rapidly.

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GERONTOLOGY

Would Ban Pessimism In Treatment of Aged

► PESSIMISM HAS no place in the treatment and care of aged persons, Dr. Malford W. Thewlis, director of the Thewlis Clinic at Wakefield, R. I., declared at the meeting of the American Geriatrics Society in Chicago.

Overworked nurses and physicians all too often treat the aged in institutions too casually and may use cruel words, Dr. Thewlis said.

Arteriosclerosis, or hardening of the arteries, is one word which "may spell despair" and should not be used.

"Even physicians," Dr. Thewlis said, "tell their elderly patients that their dizziness, cramps and sleepiness are due to hardened arteries."

"This is cruel and not even based on scientific facts."

Many persons found at post mortem examination to have severely hardened arteries, Dr. Thewlis pointed out, have never during their lives given a history of any symptoms attributable to arteriosclerosis.

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TECHNOLOGY

Gold Film on Windshield De-Ices Electrically

► AIRCRAFT WINDSHIELDS and windows can be de-iced without difficulty or electrical risk using an electrically heated glass coated with a thin film of gold.

Developed at the National Physical Laboratory, Teddington, Eng., the glass is more transparent and has less electrical resistance than previous experimental products using a current-carrying layer of gold on the glass.

The gold is deposited on the glass to a thickness of about one quarter of a millionth of an inch by a special, easy-to-handle process. Current flowing through the gold film generates enough heat to melt ice that forms on the glass.

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PHYSICS

Electricity From Atom

Nuclear energy now can be converted into electric power without intermediate steps by a newly patented method, but security veils full details.

► **ELECTRICITY** CAN now be generated directly from atomic energy. This was revealed when a patent was granted for a "method and means for generating electrical energy from a radioactive source."

The patent was granted Dr. Ernest G. Linder, Princeton, N. J., a research physicist with the Radio Corporation of America, and assigned to RCA. Its number is 2,598,925.

The Atomic Energy Commission has constructed a reactor which generates electrical energy by first using the heat from an atomic pile to make steam and then using the steam to operate a turbine. Dr. Linder's method generates electrical energy directly from atomic energy without all the intermediate steps.

Dr. Linder's patent includes a high voltage direct current generator, an alternating current generator, a charged particle gun and a beam type alternating current generator.

The d.c. generator has a radioactive source, which can produce either alpha or beta rays. This is surrounded by a spherical highly evacuated conductive collector with a terminal for the radioactive source. The source might be radioactive phosphorus or polonium. Beta rays traveling between the source terminal and the collector electrode charge the collector electrode negatively.

"If a load is connected between the collector electrode and the source terminal," the inventor says, "a current will flow through the load."

Thus the radioactive energy emitted in the beta rays may be employed directly in its original electrical form to provide electrical energy.

Materials which produce beta rays do so in energies from almost zero to three million electron volts. And alpha ray emitters go up to ten million electron volts, the inventor points out. The generator can also use alpha particles, in which case the situation is reversed.

The alternating current generator is similar to the direct current generator, according to the patent. The beam type a.c. generator makes use of focusing electrodes.

Dr. Linder would not talk about his generators, or what they are being used for, or even what they might be used for. He told *SCIENCE SERVICE* that the matter is bound up in military security and nothing could be revealed beyond what is in the patent.

A fluidless battery which uses a radioactive isotope has also been invented. The

inventor is Philip E. Ohmart, who reported his device to the Atomic Energy Commission 18 months ago. The battery uses the radioactive isotope to ionize a gas which is the medium carrying an electric current between two dissimilar metals. The amount of current generated by such a battery is extremely small.

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PSYCHOLOGY

Damp Salt Indicator Detects A-Bomb Fear

► **WITH SUCH** housewifely supplies as curtain material and a damp salt indicator chemical, Lt. Robert A. McCleary of the Air Force School of Aviation Medicine, San Antonio, Tex., has devised a test to show how much real fear the average person, particularly the average soldier, feels when about to meet the atom bomb face to face.

The curtain material, marquisette, was made into bags to hold the dampness indi-

cator, cobalt chloride crystals used in summer-time salt cellar covers. The thousand soldiers who took part in the latest A-bomb test in Nevada held these bags in their hands while awaiting the explosion.

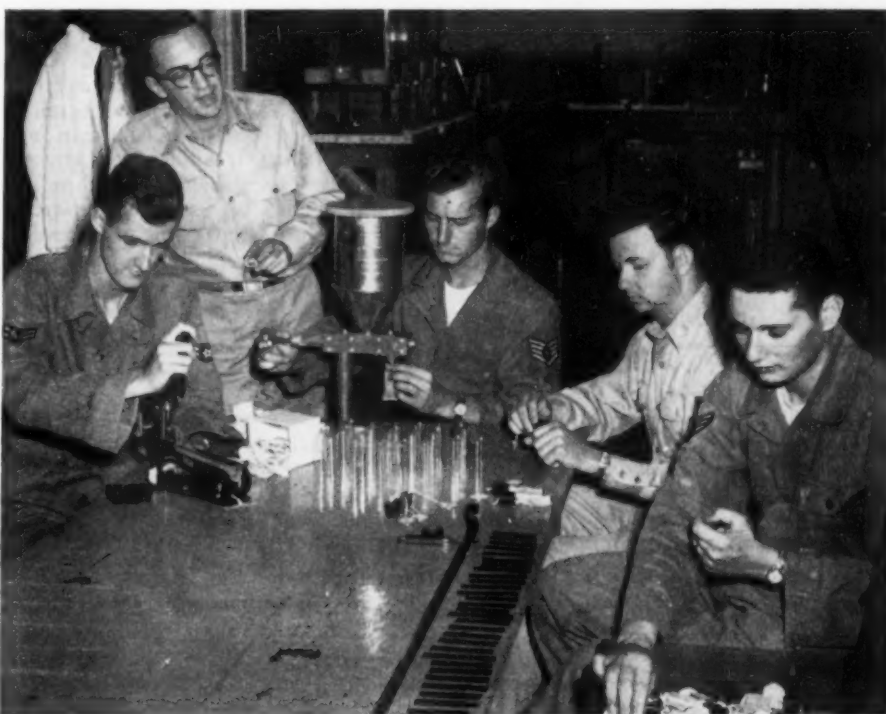
The crystals were blue at the start. They turned to light blue, lavender and finally a bright "sunset rose," as they absorbed more and more moisture from the palms of the hands.

Perspiration in the palm, as distinguished from sweating due to heat, is considered by psychologists a good indicator of emotional response. Other methods have been used to measure this. But electronic gear, dipping the hands in solutions and so on are not practical for tests of troops in the field. So Lt. McCleary devised the curtain bags of dampness indicator to give a fairly accurate mass record of the soldiers' emotional response.

The bags contain a weight of crystals carefully measured to make a complete change of color with one gram, or about 20 drops, of moisture. The various shades are compared with six well-defined tints on a set of color standards. The amount of perspiration is, of course, correlated with the normal dampness of the subject's hand, determined from a different set of bags before the test.

Although cobalt chloride has been used for industrial purposes, such as to detect humidity in sealed engines, it is believed that this is the first time that the chemical has been tried in a biological experiment.

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FEAR DETECTORS PREPARED—Airmen seated at the table are making 3,000 sweat bags, filled with cobalt chloride for a fear-detection experiment conducted by the Army during a recent atom bomb test in Nevada.

BIOPHYSICS

Anti-Radiation Treatments

Four scientists recently overexposed to radiation may not have gotten damaging overdose. Blood with blue dye, antibiotics are possible treatments for such cases.

► THE ACCIDENT which overexposed to radiation four atomic scientists at the Argonne National Laboratory, Chicago, may give medical scientists a unique opportunity to test methods of treating atomic bomb victims developed during the years since the atomic bombing in Japan. The methods so far have been developed and tried on laboratory animals.

The four scientists may not need such treatment. Overexposure means the amount of radiation they were exposed to was more than is considered safe for a given period of time. Safety levels are set fairly low, so the scientists may actually not have gotten a big enough dose to cause any damage. Blood tests and development or absence of symptoms over a period of weeks will give the answer on that.

One very promising method of treating radiation damage has been developed by Dr. Leon Jacobson, professor of medicine at the University of Chicago and associate director of the Argonne Memorial Hospital which opens in September. This consists of injections of an extract from the spleen, one of the body's blood-forming organs. Damage to the blood-forming system with consequent anemia and susceptibility to infection is the most serious feature of radiation injury.

Mice exposed to more than the usual killing dose of radiation immediately began producing new blood when given injections of ground-up spleen. But, Dr. Jacobson's latest report was that the substance in spleen which saves mice must be further refined before it can be given to humans.

Blood transfusions will probably not be given the victims unless protamine sulfate or the dye, toluidine blue, is also given. One of these is needed to control the bleeding tendency that follows radiation injury. The bleeding tendency might be increased by transfusions of whole blood alone, another University of Chicago medical scientist, Dr. J. Garrott Allen, reported.

Antibiotics, such as aureomycin, may also be given the four atomic scientists. These would, it is believed, help the body fight infection during the period when its normal anti-germ defenses have been weakened by the radiation damage.

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TECHNOLOGY

Squeeze Metal Pipe As Toothpaste From Tube

► WHITE-HOT METAL pipes 60 feet long and two inches in diameter now can be squeezed from metal-shaping equipment much like toothpaste from a tube. The new process permits pipes to be made quickly of hard-to-forge materials needed for atomic energy and commercial projects.

Just installed by the Babcock and Wilcox Co., Beaver Falls, Pa., the machinery simplifies shaping such materials as titanium, certain stainless steels, molybdenum and some of its alloys. It is difficult or impossible to forge economically any of these materials into tubes by conventional piercing and rolling methods. Yet the machine does it in less than five seconds.

Hot metal billets 28 inches long and eight inches in diameter are forced through an opening in the machine. The two-inch hole has a small plug suspended in its center, but the plug is not as large as the hole. Hot metal is forced out of the hole around the edge of the plug. It emerges as a white-hot pipe. Solid metal bars can be formed when the plug is removed.

Based on a French-developed hot-extrusion process, the new equipment is the first in America to make full use of the new method.

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What is a "sandwich tree"? p. 377.

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Are you an alcoholic? p. 370.

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How can amateurs now take three-dimensional movies? p. 374.

ORNITHOLOGY

Do birds use their eyes when alighting? p. 377.

PSYCHOLOGY

In what way does the mind affect eating habits? p. 375.

PUBLIC SAFETY

What safety rules should be followed on a shore vacation? p. 376.

ENDOCRINOLOGY

Strontium Strengthens Over-Porous Bones

► STRONTIUM, recently reported helpful in lime for soil, also helps the liming treatment of abnormally porous bones in humans. Its value when given with calcium to remineralize the bones in 10 patients was reported by Drs. Anne C. Carter and Ephraim Shorr of Cornell University Medical College and the New York Hospital, New York, at the meeting of the Endocrine Society in Chicago.

No toxic effects were seen and patients were relieved of pain and other symptoms and able to resume activity at a rate depending on the stored calcium and strontium.

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ENDOCRINOLOGY

Fat But Little Sweets In Anti-Arthritis Diet

► IT WILL be plenty of fat but not much sweet or starchy food in the diets of rheumatoid arthritis patients, if doctors follow the lead of research reported by scientists of the Highland Alameda County Hospital, Oakland, Calif., at the meeting of the Endocrine Society in Chicago.

Patients on such a diet showed significant improvement in their rheumatic symptoms. But when the starch and sugar content of the diet was increased, pain and other symptoms tended to return.

ACTH and cortisone were more effective, with fewer side effects, when given to patients on this high fat, low carbohydrate diet. Minerals and vitamins were given as supplement to the diet.

The research was conducted by Drs. John W. Partridge, Lenore Boling and Laurence W. Kinsell and Miss Florence Olson and Miss Eleanor Kipp.

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METEOROLOGY

Flood Crest Forecasts Cut Losses in Half

► ADEQUATE AND timely forecasts of flood crests during the recent great Mississippi River flood kept losses down to half as much as they might have been.

William Hiatt, chief of Hydrologic Services Division of the Weather Bureau, told a meeting of the D. C. branch of the American Meteorological Society in Washington that in a 150-mile stretch of the river, where crests forecasts were made about two weeks in advance, property damage of about \$1,400,000 was suffered. However, residents figured that the forecasts enabled them to save property worth about \$1,450,000 from the flood.

If this ratio can be applied to the rest of the flood area millions of dollars were saved.

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CAMELS AND COMETS—Two modes of transportation, camels and jet airliners, present a striking contrast on a Khartoum, Sudan, landing field. The four-engined jet De Havilland Comet shown here is being tested before making a 500 m.p.h. run between Johannesburg, South Africa, and London.

PSYCHOLOGY

Can't Talk and Listen Both

► DESPITE WHAT clubwomen may think, you cannot talk and listen at the same time.

A man in a busy message center where he must receive calls or answer questions coming at him from a number of loudspeakers, telephones or radios or directly may not be able to attend to any of them properly even though one voice does not mask out another.

Confusion is especially likely when he cannot finish the answer to one question before another question arrives. It is not possible to speak and listen at the same time and do both accurately.

This was shown clearly by an experiment conducted by Dr. D. E. Broadbent at the Medical Research Council, Cambridge, England. Navy men there were observed trying to answer questions in the kind of modern bedlam that might occur in a modern communications system. The research was reported in the JOURNAL OF EXPERIMENTAL PSYCHOLOGY (April).

The men were required to give verbal answers to simple questions which came to them over a loudspeaker. When a short silence was interspersed between questions and answers, the answers given were 98% correct. But when, occasionally, a second question came before the answer to the first was completed, the accuracy dropped. Only 90% of the interrupted answers were completed correctly and only 80% of the interrupting questions were understood well enough to receive correct answers. When

a mistake was made in an answer, that interfered more with understanding of the following question than did a correct answer.

When the answer to every question was overlapped by the next question, the accuracy dropped to 70%. And the impairment got worse with later questions.

The "carrier" phrases of telephone procedure such as "Hello" and "This is," although they may seem superfluous, really do serve a useful purpose, it was found. They increase the time needed to transmit each message, but they reduce the interference between speaking and listening.

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INVENTION

Wedge-Like Device Protects Exposed Pie Edges

► THE STALE or dried edge of a pie which has already been cut and then left standing is done away with by an invention for which James A. Harrell, Portland, Ore., received patent number 2,598,789.

The pie holder consists of two flat pieces joined at one end by a hinge. The hinge rests vertically at the center of the pie plate. At the other ends of the pieces are grooves which fit over the pie plate edge. After the pie has been cut, the flat pieces rest against the exposed pie edges.

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MANPOWER

Control of Reservists

► A SENATE Armed Services subcommittee is trying to decide whether reservists should be under the control of civilians or of the Defense Department. The decision is expected shortly.

Scientific and engineering societies, the National Association of Manufacturers and the Congress of Industrial Organizations want civilian control of the recall of reservists to active duty. The Defense Department and other governmental agencies, including the Labor Department, think Defense can handle the job.

Under present law every man drafted since June, 1951, goes into the reserves for six years after completion of his two years active service. The new Armed Forces Reserve Bill, which has been passed by the House, would put reservists into three categories: Ready, Standby and Retired.

Those who want civilian control of the recall of reservists to active duty say that

a sudden and indiscriminate recall in a time of war or national emergency might well disrupt the ability of industry to produce the necessary modern weapons and materiel. A civilian agency, they claim, would balance the requirements of industry and of scientific research projects against the requirements of the military.

Dr. Edgar C. Britton, president of the American Chemical Society, told the subcommittee that even in wartime an adequate supply of research and development personnel must remain available in the nation's universities and industries, and the training of future scientists and engineers must be continued.

On the other hand Defense Department officials pointed out that a civilian board already exists within the department to police the recalling of reserves. Secretary of Labor Maurice Tobin suggested that a combined civilian and military board within

the Defense Department be given control of reserve recalls.

While most opponents of the Defense Department's position did not designate any specific agency to handle recalls, the Engineering Manpower Commission of the Engineers Joint Council suggested that Selective Service be given the job.

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OPTICS

Three-Dimension Movies Applied to 16 mm. Film

► AMATEUR MOVIE makers can convert their cameras into semi-professional third-dimension cameras with an optical device that truly "does it with mirrors."

Called the "beam-splitter," the optical device clamps just ahead of the camera lens. Light entering the device from the object being photographed strikes a "left-eye mirror" and a "right-eye mirror." The mirrors reflect the light rays to a prism which reflects them into the camera lens.

Each 16 mm. frame carries two pictures, one for each eye to see on a screen through polaroid glasses. When viewed through the glasses, the pictures merge into a single third-dimension picture.

Floyd A. Ramsdell, general manager of the Worcester Film Corporation, Worcester, Mass., said his company has made several of the devices on special orders. But commercial production is not planned, he said, because the device is "for the rich amateur."

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ZOOLOGY

Gophers Not So Smart

► GOPHERS ARE not as smart as backyard gardeners sometimes think they are.

Since May, 1949, some 252 individual gophers have been trapped a total of 1,425 times on a four-acre test plot by Walter E. Howard, zoologist at the University of California's College of Agriculture.

Purpose of his research is to obtain better information about the gopher's life history so that better ways of controlling the pest may be devised.

To catch his gophers, Mr. Howard devised a special, box-like trap. This is placed in an active gopher runway located by probing near fresh gopher mounds. An overhead trigger mechanism indicates when a catch has been made. Since most gophers shun metal-floored traps, Mr. Howard has covered his with cloth.

Before being released, the trapped gopher is classified according to weight, sex, location, etc. He is also marked so that he may be identified when re-trapped.

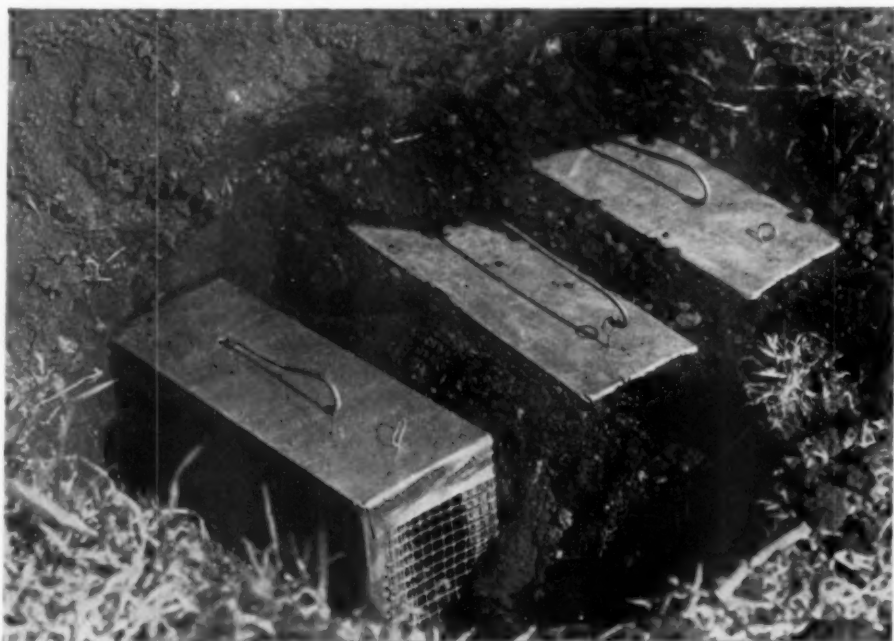
"Building a better gopher trap," the trap-builder remarked, "may not result in the world beating a path to the inventor's door, but it does make the study of gophers easier."

Gophers are diligent little creatures that can dig tunnels 300 times their own length overnight. Unlike the mole, which compresses earth by brute force as it worms through the ground, the gopher uses his front feet to loosen the soil. He shoves it under his small body then pushes it out of the tunnel with his chest.

The gopher is a vegetarian. He spends almost all of his life underground in search

of roots, bulbs and tubers. Some gophers are called "pocket gophers" because of an external fur-lined cheek pouch where they store their food.

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BETTER GOPHER TRAP—Live pocket gopher traps as shown here have snared 252 individual gophers a total of 1,425 times as part of a study of the life history of these animals at the University of California College of Agriculture, Davis. The aim is to develop better methods of control of the costly gophers.

ASTRONOMY

Saucers Elude Astronomers

Although cameras and telescopes all over the country are sweeping the skies, no trained observers have yet spotted the mysterious disks.

By DR. C. C. WYLIE

Professor of Astronomy, University of Iowa.

► NOT ONE "saucer" has been reported as the result of astronomical observations.

Looking over all the stories in magazines and newspapers reporting flying saucers, this lack of astronomical data is impressive.

In spite of the fact that astronomical telescopes and cameras are working in all parts of the country every clear night, that thousands of meteors have been observed by radar, and that astronomers are regularly interviewing persons who have seen spectacular meteors, not one "saucer" has been reported in astronomical work.

The fact that each saucer has been reported from only one point suggests that most have been spots of reflected light. Sunlight reflected from bright surface produces, at the critical angle, a bright, silvery, round or oval spot, with no sign of the airplane, or bird, responsible. The best saucers reported to us have proved on investigation to be due to airplanes. (I have seen one beautiful set of such saucers.)

The fact that each saucer has been observed from only one point means that the heights and speeds are mere guesses. Without at least one pointing from a different location, the height is unknown.

It was pointed out years ago that the question of the reality of the saucers could be quickly answered by having each story investigated promptly, as meteor reports are now being investigated in parts of the country. Fact could be separated from fiction and fancy in this way, as it cannot be for these old reports. The sensational features of most stories would be quickly eliminated, and should a real object be found, its path, height, and speed could be easily calculated.

The fact that none of the magazine articles suggests that a real investigation of the stories be made as they are reported is evidence that the writers have little confidence in the reality of the interplanetary saucers. One suspects they are afraid that such an investigation, by producing commonplace explanations for the stories, would spoil material for good articles in the future.

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PSYCHOLOGY

Mind Dictates Food Foibles

► PECULIARITIES OF eating may be due more to the state of mind than to the state of the stomach, Dr. Sol Wiener Ginsburg of the College of Physicians and Surgeons, Columbia University, reported to the American Home Economics Association in Washington.

If you are scared to eat lobster and ice cream at the same meal or believe that raw onions do not "agree with you," it may be because of the care you received as a baby from your mother.

If you save your favorite tidbit to enjoy last, or if you gobble it up first of all, if you compare your wife's apple pie with "the kind Mother used to make," trace these habits back to emotional attitudes formed in early childhood.

The person who saves the favorite food, Dr. Ginsburg speculates, is more secure while the person who must eat it quickly is anxious and acts as though afraid it might be snatched away.

Dr. Ginsburg lists six different kinds of peculiar eaters, each with a distinctive emotional problem.

1. The anxious eater. A young woman patient of this type believed that she could eat only in the most expensive restaurants. She would not eat any fried food, cold soup, salad with roughage or any of a long list of foods that she was sure would upset her, but lived on a highly limited, colorless, bland diet.

2. The ritualistic eater. This is the person who must eat "on time" whether the hour is convenient for others or even for himself. He must eat at least one hot meal a day, never touch lobsters, never mix drinks and has a whole array of superstitions about food.

3. The substitutive eater. This is the person who uses food to take the place of love, affection and personal satisfaction. One such person will eat a two-pound box of candy or a couple of pounds of rich cookies as a between-meal snack.

4. The picky or "spoiled darling" eater. People of this type are considered "frail." They are constantly worried about food—its health features, preparation, ease of digestion, etc.

5. The irrational eaters. These are the persons who stubbornly defy doctor's orders on diet. The diabetic who sneak-eats sweets or the ulcer patient who surreptitiously eats forbidden foods.

6. The indifferent eater. This person goes through life following the childhood injunction to "just eat what is put in front of you and don't fuss so much about it." For him eating is a chore, an unpleasant necessity.

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MEDICINE

Chemical Stops Pain From Cancer of Bone Marrow

► TWO OUT of every three patients with cancer of the bone marrow are getting remissions through treatment with the chemical, urethane, Dr. R. Wayne Rundles of Duke University Hospital, Durham, N. C., announced in a report to the American Cancer Society.

The treatment is not a cure, Dr. Rundles emphasized. But in many cases patients were freed of pain and able to return to work and everyday routines without any symptoms of the disease.

The average lifespan of patients with this cancer, called multiple myeloma, is about 18 months. Urethane is doubling and tripling the survival of some patients, Dr. Rundles reports.

Multiple myeloma is characterized by great pain, enormous production of abnormal proteins and calcium depletion which often is so great that the bones have a punched-out appearance and may be broken by no greater strain than getting out of bed.

Patients must be regularly treated with urethane and unfortunately may sooner or later become resistant to the drug.

Science News Letter, June 14, 1952

VETERINARY MEDICINE

Cats, Too, Can Get Leukemia, Blood Cancer

► CATS CAN get leukemia, so-called blood cancer, as well as humans. Scientists at the National Cancer Institute discovered this when a "middle-aged," 7-year-old male house cat was brought to the Institute by its owner because the cat had been ill, listless and losing weight for six weeks.

Blood tests by Dr. Willard H. Eyestone showed that the cat had myelogenous stem-cell leukemia. The diagnosis was confirmed by examination after the cat's death.

The animal had no history of being exposed to X-ray or other possible cancer-producers. The case is believed the first on record of spontaneous development of this leukemia in a cat. The other types of leukemia have been reported in horses, dogs, chickens, pigs and cattle. Most research on leukemia has been with mice and rats.

Science News Letter, June 14, 1952

MEDICINE

Brucellosis Causes Sterility in Men

► BRUCELLOSIS, also called undulant fever and Malta fever, may cause sterility in men. Dr. F. A. de la Balze of Buenos Aires, Argentina, reported at the meeting of the Endocrine Society.

The disease itself, a long drawn-out one with fever and frequent relapses, attacks both animals and humans. Humans get it chiefly from drinking raw milk from infected goats or cows and from handling infected animals.

Microscopic examination of bits of tissue from the sex glands of eight men patients, aged 27 to 50, showed inflammation, hardening and shrivelling of the tissue. Only two out of seven of the patients had normal sperm cells. There was complete lack of these reproductive cells in three cases and abnormally low number in two cases. Sex hormone excretion was increased in two cases and normal in five.

Some patients had no symptoms of sex gland inflammation although examination of the tissue under the microscope showed damage.

Associated with Dr. de la Balze in the study were Drs. R. E. Mancini, G. Iacapraro, F. Arrillaga and E. A. Molinelli, all of Buenos Aires.

Science News Letter, June 14, 1952

PUBLIC SAFETY

Follow Safety Rules For Vacation Near Water

► WHETHER YOU go to the seashore or a mountain lake on your vacation this summer, you will have more fun and be safer if you know how to swim.

Besides the enjoyment of swimming itself, you can more safely enjoy canoeing and sailing. So if you can not swim, put swimming lessons first on your vacation schedule.

Don't rely on water wings, old inner tubes or other air-filled tops to hold you up if you can not swim. A sudden leak may leave you struggling without support in deep water. Other rules for safe swimming, as important for practiced swimmers as for beginners, follow:

Swim only at beaches where lifeguards are on duty.

Do not swim out too far beyond your depth.

Always make sure you are accompanied by a boat when swimming long distances.

Never play practical jokes on persons in the water, especially on those who can not swim.

Before diving, always check on the depth of the water and make sure there are no obstructions hidden below the surface. This is especially important at low tide.

Don't go in the water immediately after

eating. If subject to cramps, wait for at least two hours and then do not go in water beyond your depth.

If you have a heart impediment, be very careful to avoid sudden shocks while bathing.

Never swim in polluted waters which have been condemned by the Health Department.

Watch the babies and small children. Many toddlers will daringly follow grown-ups or big boys and girls into the water. If they lose their footing or are covered by a wave, they may be drowned before they are missed, unless some one has the job of keeping constant watch over them.

Science News Letter, June 14, 1952

BIOCHEMISTRY

Swedish Drug Treats Ulcerative Colitis

► GOOD RESULTS with a Swedish drug for treatment of ulcerative colitis are reported by Dr. Lester M. Morrison of the College of Medical Evangelists, Los Angeles.

The drug is an azo dye combination of a sulfa drug and salicylic acid. It is called azulfidine. It was developed by A. B. Pharmacia, Upsala pharmaceutical firm, at the suggestion of and in collaboration with Prof. Nanna Svartz of the Carolinian Institute, Stockholm.

Of 42 patients who had the full course of treatment, 20 showed "great improvement" and 10 temporary improvement. Reporting his results and commenting on Dr. Svartz' 90% cure or greatly improved rate in 124 patients, Dr. Morrison called the drug "the most promising to date" for ulcerative colitis. Details of his studies are reported in the JOURNAL OF GASTROENTEROLOGY.

Science News Letter, June 14, 1952

INVENTION

Prepare Better Antigens For Tick Fever Tests

► A METHOD of preparing better antigens for tests to diagnose tick fever, scrub typhus, spotted fever and other diseases caused by viruses and rickettsia has been invented by Carl J. De Boer, Perth Amboy, N. J., and assigned to the American Cyanamid Company, New York. He received patent number 2,598,659.

In preparing the antigens from such tissues as are found in egg yolk sacs it has been previously impossible to remove a substance which would react with the blood serum of a patient who has had syphilis but who does not necessarily have the disease to be tested for.

The inventor claims that it is now possible to extract this syphilis-reacting substance by using dichlorethylene as a solvent. It removes the syphilitic antigens without appreciable effect on the viral antigens.

Science News Letter, June 14, 1952

IN SCIENCE

MEDICINE

Ideal Hospitals Foreseen in 2000 A.D.

► PUT THE year 2000 in your date book as a good time to go to a hospital. By that time a hospital will be "a haven of comfort for the patient." Wards will be almost as extinct as the Dodo. Complete air conditioning and plumbing facilities built into electrically operated beds will be other features.

All this and more besides, such as radar cooked meals with "delightful" taste as well as suitable nourishing factors and instant sterilization of instruments and utensils by high voltage rays, are seen by Dr. Jack Masur of the U. S. Public Health Service.

He gave this picture in a report to the American Surgical Trade Association in Chicago.

Science News Letter, June 14, 1952

NUTRITION

World Hungriest Yet; Rice Critically Short

► THE WORLD is hungrier than it has been and the food situation, despite much international cooperation, is continually getting worse.

Dr. Norris E. Dodd, director-general of the Food and Agriculture Organization of the United States, speaking as guest of Watson Davis, director of SCIENCE SERVICE, over the nationwide CBS Radio Network, declared:

"There can not be permanent peace in the world until the world's problem of starvation and undernourishment is solved."

A few years ago it used to be said that there were 55,000 new mouths to feed at each day's breakfast. The figure is now above 60,000 and steadily rising.

Rice is the world staple food that is most critically short, Dr. Dodd found on a world-circling inspection trip. More people in the world eat rice as a staple food than any other food. The amount of rice in the world market is at its lowest with a severe shortage in the Far East.

Production of rice is up only one percent over the pre-war average, although the area planted to rice has been expanded by 10%. Asiatic countries have had to make heavy imports of wheat and coarse grains to supplement and even to supplant the traditional rice diet.

Dr. Dodd, formerly U. S. Undersecretary of Agriculture, has his headquarters in Rome and he recorded the program when he was in the United States.

Science News Letter, June 14, 1952

SCIENCE FIELDS

ZOOLOGY

Zoo's Albino Kangaroo Is Only One in Captivity

See Front Cover

► THE ONLY albino kangaroo in captivity, now on display at the National Zoological Park in Washington, is shown on the cover of this week's SCIENCE NEWS LETTER. It was given to the people of the United States by the government and people of Australia as a symbol of good will between the two countries.

The 14-month-old animal was presented by Percy C. Spender, Australian Ambassador to Washington, who has since been made a knight by Queen Elizabeth II. On behalf of President Truman, Chief of Protocol John F. Simmons of the State Department accepted the gift.

The white kangaroo was found in its mother's pouch in Australia by E. J. L. Hallstrom, after the mother had been shot in a kangaroo roundup. The eyes of albino kangaroos are quite weak and they often hurt themselves by jumping against obstacles.

Science News Letter, June 14, 1952

MEDICINE

Hope to Understand Deadly Stomach Cancer

► A NEW approach to the problem of stomach cancer, commonest form of cancer death in men, is being taken by Dr. Francis E. Ray of the University of Florida, Gainesville.

Animals other than man almost never get stomach cancer and scientists have found it virtually impossible to give stomach cancer to experimental animals.

So Dr. Ray is investigating the factors that protect the stomachs of animals and fail to protect the stomachs of humans from cancer.

The mucous lining of the stomach is one thing that seems to protect animal stomachs from cancer, though man also has a mucous lining in his stomach.

Glandular parts of the stomach secrete acids which may rob cancer-causing chemicals of their ability to start cancers. Dr. Ray finds he can attack this part of the rat's stomach by injecting cancer-causing compounds into the rat's belly cavity in which the stomach is located. In from 15 to 60 minutes the chemicals showed up in the rat's stomach.

Rats developed gastritis and ulcers from these injections. They developed warts of a type that sometimes may precede cancer.

But none of the animals has yet developed cancer.

The mystery of what protects them from stomach cancer is still unsolved but Dr. Ray hopes that further research, for which the American Cancer Society has awarded a \$2,000 grant, will solve it.

When and if the protective factors in animal stomachs are found, it may be possible to reinforce human stomachs against cancer.

Science News Letter, June 14, 1952

HORTICULTURE

"Sandwich Tree" May Solve Virus Disease of Citrus Fruit

► SCIENTISTS AT the University of California's Citrus Experiment Station, Riverside, Calif., have come up with a possible answer to Quick Decline, the mysterious virus disease threatening the state's multi-million dollar citrus crop.

Their solution: An ingenious "sandwich tree." For example, a sour orange rootstock, a sweet orange trunk and a lemon top.

This is one of the many varieties of "sandwiches" tried in an effort to find a combination that will not be susceptible to Quick Decline like the sweet-on-sour rootstock, widely used in orange plantings until a few years ago.

A grove of some five acres of sweet orange on sour orange stock, budded over to lemons in 1938 before Quick Decline appeared, still appears to be in excellent condition, while unworked orange trees nearby are declining.

Studies now being made by Drs. J. M. Wallace and H. Schneider are concerned with whether such trees actually have resistance to infection by the Quick Decline virus or whether they are infected and show no symptoms.

Science News Letter, June 14, 1952

MEDICINE

X-Ray Examinations Twice Yearly for Heavy Smokers

► EVERY MAN over 45 who is a heavy smoker should have a X-ray examination twice a year as a defense against lung cancer, Dr. J. Winthrop Peabody of Georgetown University Medical School, Washington, D. C., declared at the meeting of the American Medical Association in Chicago.

He gives this advice because of a higher incidence of lung cancer among heavy smokers than among non-smokers. With this practice he believes that most lung cancers would be diagnosed in the stage where operation can be done to save the patient's life.

The disease can now be definitely diagnosed in about 85% of the cases, many times when cough is the only symptom or even when there are no symptoms.

Science News Letter, June 14, 1952

ORNITHOLOGY

Birds Use Eyes in Alighting From Flight

► WHEN A bird comes into the wind for a landing, it uses its vision in controlling the critical task of alighting.

After experimenting with blindfold pigeons, juncos and sparrows, Dr. William J. Beecher of the Chicago Natural History Museum concludes that birds alight by visual clues. They turn their heads intently downward upon alighting and Dr. Beecher believes they observe the let-down point binocularly. Blindfolded birds simply fluttered to the ground.

When the wind is less than five miles per hour, the birds pay no attention to it, alighting indiscriminately from any direction. When their speed or the wind is too high, the birds turn around or at right angle and alight when the wind cancels forward movement. The landing maneuver of birds, due to their mobile wings, is more like that of a helicopter than of a conventional airplane.

Due to the use of their eyes in landing, night flights of birds are very hazardous. Their vision is actually inferior to that of human beings and a migratory flight launched at night cannot land safely until daylight. This may explain migration catastrophes in which birds by the millions have been dashed to death against the earth in night storms.

Dr. Beecher makes his report in the journal SCIENCE (May 30).

Science News Letter, June 14, 1952

MEDICINE

Drug Eases Stiff Joints, Stops Acute Gout Fast

► GOOD RESULTS with a drug that lubricates stiff rheumatic joints and eases their pain was reported by two groups of New York physicians at the American Rheumatism Association meeting in Chicago.

The drug is phenylbutazone. In spite of causing a fair number of reactions, it "promises to be a superior analgesic" for relieving pain in muscle and joint disorders with slight, if any, anti-rheumatoid action, Drs. Otto Steinbrocker, Sidney Berkowitz, Solomon Carp, Mortimer Ehrlich and Mortimer Elkind reported from their experience.

Quick arrest of acute gouty arthritis which sometimes had been resistant to the usual anti-gout medicine, colchicine, was one of "the most remarkable effects" in the experience of Drs. E. C. Kidd, K. C. Boyce and Richard H. Freyberg.

Unpleasant reactions, reported by both groups of physicians, consisted chiefly of indigestion, lack of appetite, nausea, bloating, skin trouble, and disturbance of water balance as shown by weight gain and dropsy. No sign of blood disorder was noted.

Science News Letter, June 14, 1952

ENGINEERING

Army Girds for Polar War

Arctic climate must be conquered as well as enemy. Machines and tools must function properly at temperatures as low as 65 degrees below zero.

By ALLEN LONG

► THE NEXT war may be a cold war. The Arctic may be the locale. It offers a bleak, barren, frigid face, whipping winds, dazzling brightness and treacherous, swamp-like land.

Under those conditions the serviceman of World War III may have to fight. He must be prepared to conquer not only the enemy but also the elements.

It will not be an easy job. But at least he will have paths already blazed for him over some of the obstacles studied by technical research workers. Men who acted as guinea pigs during peacetime also will have provided him with solutions to some Arctic problems.

Two Uniforms Developed

A soldier must not freeze to death if he is to fight. To protect him from temperatures which fall as low as 65 degrees below zero, and from winds which swirl cold air around him, carrying off his body heat, the Army Quartermaster Corps set up a research department to explore new ways of clothing the soldier's frame.

Out of the research work came two uniforms which solve some of the problems encountered in cold weather.

The "cold-wet" field combat uniform is designed to protect the soldier operating in areas where mean monthly temperatures range from 68 degrees down to 14 degrees Fahrenheit. It is designed to withstand such adverse environmental conditions as driving rains, wet snow, slush and muddy ground. Trenchfoot and damp penetration which produced chill were problems encountered by research workers developing that uniform.

Designed for Arctic use where mean monthly temperatures range from 14 degrees on down, the "cold-dry" field combat uniform should protect the soldier from freezing and from frostbite.

Both uniforms are based on the layer principle. Clothes, rather than being tight-fitting, instead are loose enough to allow air to be retained as insulation. That principle has been used for years by Eskimos.

The soldier dons long underwear which looks baggy compared to present-day civilian styles. Then he starts putting on shirts, trousers and jackets designed so that their linings can be worn and the outer garment removed. When the soldier gets all his

cold-dry uniform on, he weighs about 25 pounds more than he did before he started dressing.

One object of the layer principle was to provide the serviceman with a uniform which he could shed or add to as he got warmer or cooler. It has not been found satisfactory to take jackets and parkas off to remove a sweater, then to replace the jackets and parkas. In battle, the soldier might not have enough time to do that. Furthermore, at Arctic temperatures he might be frostbitten while going through that process.

Since it is almost like signing your own death certificate to work up a sweat in the Arctic (because perspiration freezes and, eventually, so do you), when the soldier feels he is getting too warm, he merely takes off a jacket, or the outer-lining of a jacket, depending upon how hot he is.

Currently a new garment is undergoing tests. It is a foam-rubber sort of plastic material which contains millions of tiny air

pockets. No clothes are worn under it. An ordinary pair of army trousers and a field jacket are worn over it to protect the material from being torn.

The new garment is unaffected by moisture. Furthermore it is buoyant. If the soldier falls into a river or lake, the garment will support him plus a 26-pound pack. When he steps out of the water, the moisture in the garment runs out and he becomes warm again in a matter of minutes.

Other Problems to Solve

Clothing the Arctic fighter in a suitable uniform is only one of the problems which must be solved. Other problems involve machines, tools, tactics and morale.

Since the shortest distance to major land masses of the Northern Hemisphere is over the Arctic, provisions must be made for transporting materials. Airfields to support heavy aircraft probably will have to be built in the event of a cold war. Much of the Arctic land is muskeg, a swampy muck which will not support even a man, much less an airstrip.

Again the elements and environment come into the picture. They offer more problems which must be solved before the elements can be enlisted as allies. Just



SNOWBOUND IN THE ARCTIC—This snow-covered but illustrates one of the problems encountered in Arctic life. Drifts often bog equipment and endanger personnel. Winds shift snow into the streets if buildings are not situated properly relative to the wind. Even the drifts created by snow plows are dangerous.

this week the Army concluded operation "Eager Beaver" in the Canadian Yukon in which 435 engineers built emergency airstrips on the frozen lakes and shifty muskeg of the Arctic.

When the first attempts were made to discover what conditions the serviceman would find in the Arctic, unexpected difficulties constantly were being encountered. Motors would not start. Fuel lines froze. Huts created snowdrifts which blocked the streets. Equipment stuck in the snow. Tools became brittle and broke in normal use. All of those problems had to be solved.

Now when the Army announces a new model of its equipment, usually the description of it says, "... and it will operate in temperatures as low as minus 65 degrees Fahrenheit." Such a statement was made recently in connection with a new hand-talkie FM radio, and the latest jeep model.

Military tactics in the Arctic will be affected by four things, according to Lt. Col. Joseph J. Peot, an instructor in the Signal Corps. They are sparse settlement, lack of roads and railroads, numerous lakes and waterways, and lack of maps.

Natural Communication Routes

Lakes and waterways frequently offer a good road system about six or eight months of the year when they are frozen, he said. Snow can be removed from the ice, and waterways may provide natural airstrips.

But military tactics may be affected adversely by sparse settlement which creates a scarcity of local supplies and of quarter-

ing facilities. Roads and railroads, almost nonexistent, are highly vulnerable to the enemy, as well as to the weather.

Maps are unreliable, and aerial photographs are not too satisfactory because of a lack of contrast in the topography and because of a lack of actinic values in Arctic sunlight. The actinic value in light affects the exposure of photographic films.

Morale Inhibiting Factors

Morale of troops is apt to drop in Arctic operations because of a feeling of loneliness brought on by the absence of inhabitants, industry and cultural features. The long winter nights and deathly silence accompanying dropping temperatures also may inhibit good morale. A feeling of being isolated may develop in troops because of their being far away from built-up areas.

Because of these morale-inhibiting factors, emotional stability in the soldier assumes an even greater importance. It is still controversial whether psychological tests can reveal which men are best suited for Arctic duty, but physical tests at least ought to screen out the men whose health would be affected by the Arctic climate, Col. Peot said.

Much remains to be learned about the Arctic and about Arctic warfare. But the armed services are working toward a goal which should provide adequate protection for the United States should some nation decide to get rambunctious in the cold, desolate regions of the North Pole.

Science News Letter, June 14, 1952

METEOROLOGY

Weather Pattern Reversed

► THE NATION'S weather has been going backward and it is expected to continue going backward for the rest of June.

Instead of the general weather patterns moving from west to east across the nation, they are moving from east to west. In mid-May, the Weather Bureau's Extended Forecast Section predicted that average temperatures for the period to mid-June would be

below seasonal normals across the northern half of the nation from New England to the Rockies.

On June 1, it was forecast that this below seasonal normal area will extend from an area around Ohio and Indiana out to the West Coast. East of there, near normal temperatures are expected during June.

The extreme Southwest and the Southeast can expect above normal temperatures, while the rest of the South will have about average temperatures.

"Abundant showers, giving more than normal rainfall, are expected over most of the country between the Rockies and the Appalachians," the weathermen predict for June. Other parts of the country can expect normal amounts of rain.

This backward movement of the weather patterns is caused by an east-to-west movement of the waves in the general air current which circles the globe above 10,000 feet. The current continues to move from west to east, but the waves or north-and-south undulations in it are now travelling from east to west.

Science News Letter, June 14, 1952

Philosophical Library Publications

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THE NATURE OF SOME OF OUR PHYSICAL CONCEPTS

by P. W. Bridgman

Three lectures were given at the University of London in the spring of 1950. The particular object was to distinguish between the "instrumental" and the "paper and pen" component of the operations of the physicist. \$2.75

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by E. J. Holmyard

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DENTISTRY

Use Mirror and Eyeglasses For Proper Toothbrushing

► WHEN YOU brush your teeth, look in the mirror and put on your eyeglasses if you wear glasses for reading.

This new addition to the morning and evening toothbrushing routine is advised by Dr. Dorothy G. Hard of the University of Michigan School of Dentistry, Ann Arbor, in a report to the American Dental Association.

Best way to prevent gum trouble, she says, is by keeping the teeth "continuously clean" and keeping them in shape to function.

To keep them really clean, you should watch each stroke of the toothbrush. Look in the mirror over the washbowl instead of down into the bowl as you brush.

If a flavored tooth paste or powder makes brushing pleasanter, use it, but it will have no treatment value, Dr. Hard says.

Rinse after brushing, to flush out any remaining debris, Dr. Hard advises, pointing out that the "least expensive and most available wash is water."

Dr. Hard's directions on how to brush are:

The brush is placed against the upper gum tissues with the bristles pointing up. Pressure is then exerted on the tissues with the side of the bristles to blanch them momentarily. The pressure stimulates circulation and increases tissue resistance.

Then the brush is moved by a wrist motion carrying the bristles downward and slightly sideways in order to reach the surfaces between the teeth. For the lower teeth, the same movements are used in reverse.

The strokes should be performed slowly and repeated four or five times in each position until all areas are covered and every tooth is reached.

Science News Letter, June 14, 1952



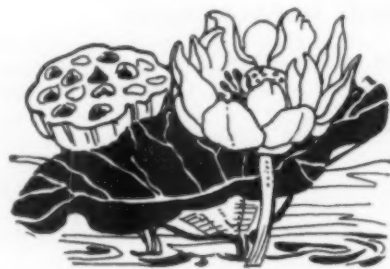
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BOTANY

NATURE RAMBLINGS



Vegetable Ventilators

► THE INGENIOUS device known as the snorkel tube by which air in submarines can be replenished, is after all not original.

If you will cut through the stem of a waterlily or a lotus, or almost any plant that grows with its roots under water, you will find that it is not solid like the stems of most land plants, but that it has one or more holes in it.

If you split the stem lengthwise you will find that these holes are long open channels. They lead down from leaves and flowers clear to the submerged roots.

The roots of a plant must have air, just

as the leaves must. Without it they smother, just as a drowning man really dies of suffocation because he cannot get air into his lungs.

Plants, unlike animals, do not have an elaborate system of lungs, respiratory muscles and blood corpuscles to carry oxygen supplies to the body's remotest tissues. Their oxygen supplies reach all their cells quite directly.

That is one reason why leaves are a plant's most active organs—they are flat and thin, and oxygen from the air does not have to travel far to supply all their cells.

Although the roots of most common plants are underground, they can still get their oxygen. Enough air filters through the myriad crevices between soil particles to take care of that. That is, it does when the soil is in good tilth; if there is too much rain and flat fields are flooded too long, most of the plants in them simply die of drowning.

Herbaceous plants like waterlilies and arrowleaf are not the only ones that have air-passages in their stems. Waterside shrubs like the buttonbush, and even great trees like the pond cypress, have breather systems. They differ in details of structure but they all serve the same function in the end.

The cypress uses a peculiar contrivance to get air to its roots. Every here and there a steeple-shaped structure projects up through the water where the trees stand. It is not hollow, like stems of some aquatic herbs, but is filled with a loose, sponge-like woody tissue, through which air can filter without too great difficulty.

Science News Letter, June 14, 1952

SURGERY

Brittle Bones Shifted

► SOME CHILDREN are born with brittle bones that break on very little pressure. Just why these bones are so brittle is not known to medical science.

The results of laboratory tests do not show a lack of minerals or other substances in the body, or even a deficiency of hormones, which are chemical substances normally produced in the body, reports the Illinois State Medical Society.

Even though the exact cause of this brittleness is not known, heredity seems to be a factor, since studies have revealed this characteristic in families.

Until recently, children with this brittle quality in their bones could not walk because of the repeated fractures. In many instances a child, after passing through adolescence, loses the tendency to have bones break so easily, while other youngsters having this brittle quality continue to break their bones throughout their adult lives. Again, the reason for this variation is not known.

Many medical and surgical procedures have been attempted to overcome the repeated fractures resulting from the brittle quality of the bones. One that has proved successful in a number of instances is the removal of the bone from the body.

For example a thigh bone is removed and cut into several sections and rearranged in an effort to obtain the straightest alignment. It may be necessary to turn some pieces end for end, or even rotate them. Then a metal rod is inserted to hold the pieces in line and to provide a slide support so they will not break so easily in the future.

When this procedure is accomplished the bone is returned to its position in the leg and fastened to the growing ends of the bone, at the top and bottom. The growing ends of the bone are never removed from the body, since these growing sections must remain in the body to renew again the growth of the bone.

Science News Letter, June 14, 1952

ASTRONOMY

Plan for 1954 Eclipse

Astronomers already are eyeing suitable spots to see the sun's eclipse two years from now. The heavenly show will be visible from North America and Europe.

► ASTRONOMERS ALREADY are beginning to take out maps, and plan a summer trip two years hence. Many are casting their eyes on cool Canada, Labrador, Greenland, The Faeroes, Norway and Sweden.

Though the exact location each would prefer may not have been selected yet, the date is definite. All will choose the last week of June, and as long before as they can arrange. The reason? The next total eclipse of the sun will take place June 30, 1954.

This will be an international eclipse, seen by many peoples. Russians as well as Canadians from their own soil can see the sun's bright disk slip behind the moon. Cubans and Egyptians, Alaskans and Finns all will be able to see the moon hide at least a little of the sun.

Everyone in the United States except those in the West and Southwest should be able to see at least part of the sun hidden by the moon. The sun will rise more or less eclipsed in the southern and central states. It will be above the horizon before the eclipse begins in the eastern and northeastern states.

The total phase of this eclipse, like all that take place far from the equator, will not last very long. At most the moon will be between the earth and the sun only two minutes 35 seconds.

Unlike most total solar eclipses, the path of totality passes over more land than water, according to calculations made at the U. S. Naval Observatory, Washington. The eclipse begins at sunrise in the United States and ends at sunset in India.

Millions will have an opportunity to observe the total phase of this eclipse from the

United States, southern Canada, Scandinavia, Lithuania, Russia, the Middle East and India. But much of the land which the path of totality crosses in Canada, Labrador and Greenland is uninhabited.

The eclipse begins at sunrise for people in northeastern Nebraska. Its path crosses the southern part of South Dakota and the extreme northwestern corner of Iowa, then enters Minnesota, northern Wisconsin and the upper peninsula of Michigan. People in Minneapolis and St. Paul will be able to see the dark moon slip in front of the sun.

Crossing Lake Superior, the eclipse path crosses the provinces of Ontario and Quebec to the coast of Labrador. Passing over the southwest coast of Greenland between Arsuk and Lichtenau, it goes just south of Iceland, then heads toward The Faeroes, the Shetland Islands and the coast of Norway at about Bergen.

Crossing well-populated southern Norway and Sweden, the path passes over Memel in Lithuania and Kiev in Russia. It crosses the Caspian Sea, passes over Asterad in Iran, Farrah in Afghanistan and continues through Pakistan. The eclipse ends at sunset when its path leaves the earth near Jodhpur, India.

Science News Letter, June 14, 1952

AERONAUTICS

World War II Seaplane Given Up-to-Date Design

► A MADE-OVER World War II seaplane having a new and improved flying-boat hull bottom currently is undergoing taxi and flight tests in Chesapeake Bay near Baltimore.

Known as research model M-270, the new slenderized hull bottom has been designed by the Navy and Glenn L. Martin Company to provide superior aerodynamic qualities, and to improve the body efficiency. Its lines also were designed with an eye toward jet engines.

The M-270 is not a new plane. It is a further improvement of the PBM Mariner, veteran of many anti-submarine campaigns during World War II. The lower part of its hull, however, is new and embodies in full scale the results of years of extensive towing-tank and wind-tunnel tests.

After its aerodynamic qualities have been studied, the made-over plane will be used as an aid to design engineers of future flying boats.

Science News Letter, June 14, 1952

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Since comparative histology tells so much about the nature of man, this study should begin in high school, and be enlarged on in the liberal arts and teachers colleges, and in the university. Like English, it should be a required study for all students in every school of intermediate and higher education. The result would be a better citizenry: better parents, better teachers, better preachers, better physicians, a better man, and a more perfect society, which is the purpose of education. It should always be borne in mind that nothing can justifiably take the place of knowledge based on truth; and that no discipline can tell so much about the true nature of man as modern comparative histology. Premedical students should make comparative histology their biggest course, because the medical schools devote very little time to the study of this most important discipline. The medical students should realize that knowledge of cellular biology gives meaning to pathology, anatomy and physiology and is the natural and least costly approach to all medical problems. Begin study histology in high school.

THE AGERSBORG BIOLOGICAL LABORATORY
Centralia, Illinois

Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

AIR POLLUTION ABATEMENT MANUAL: Bibliography—George F. Jenkins—*Manufacturing Chemists Association*, 57 p., paper, 50 cents. More than 1,500 references listed under six subject headings.

ANNUAL REVIEW OF NUCLEAR SCIENCE, Volume 1—Committee on Nuclear Science, National Research Council—*Annual Reviews*, 645 p., illus., \$6.00. A number of contributors have prepared this series of reviews of the major developments of 1950.

APPLICATIONS OF PSYCHOLOGY: Essays to Honor Walter V. Bingham—L. L. Thurstone, Ed.—*Harper*, 209 p., \$3.00. It is appropriate that the majority of these essays honoring Dr. Bingham should deal with various phases of personnel selection.

BACTERIA—Stanley Thomas and Thomas H. Grainger—*Blakiston*, 623 p., illus., \$5.50. A text for an introductory course with the emphasis on fundamentals that will be useful to undergraduates regardless of what field they will later study.

BRITISH PLANNING AND NATIONALIZATION—Ben W. Lewis—*Twentieth Century Fund*, 313 p., \$3.00. An examination of what Britain is doing and the implications for the United States.

CONTROL OF THE PURPLE SCALE ON CITRUS WITH PARATHION—Herbert Spencer, Max R. Osburn and Paul A. Norman—*Govt. Printing Office*, USDA Circular No. 896, 10 p., paper, five cents. Results of 15 grove experiments.

DYNAMIC ASPECTS OF BIOCHEMISTRY—Ernest Baldwin—*Cambridge University Press*, 2d ed., 544 p., \$5.00. A text intended to encourage dynamic habits of thought and prepared especially for those students who are not studying biochemistry in preparation for medicine.

ELECTRONIC ANALOG COMPUTERS (D-C ANALOG COMPUTERS)—Granino A. Korn and Theresa M. Korn—*McGraw-Hill*, 378 p., illus., \$7.00. How to design and operate this type of electronic "brain," and how to set up problems for them.

ELECTRONIC AND IONIC IMPACT PHENOMENA—H. S. W. Massey and E. H. S. Burhop—*Oxford University Press*, 669 p., illus., \$14.00. Devoted to a study of collisions of particles of low velocity.

FABRICAS: A Collection of Pictures and Statements on the Mineral Materials Used in Building in California Prior to 1850—Elizabeth L. Egenhoff, compiler—*California Division of Mines*, 189 p., illus., paper, \$1.00. Since much of the building in California before the gold rush was done by Franciscan missionaries, this is, in great part, a history of the missions.

GENERAL COLLEGE PHYSICS—Ertle Leslie Harrington—*Van Nostrand*, 787 p., illus., \$6.75. Text for a one-year course with illustrations and applications drawn from other than engineering fields.

GETTING READY TO RETIRE—Kathryn Close—*Public Affairs Committee*, 24 p., illus., paper, 25 cents. Warning young people that they should begin making preparations so that life after retirement may be satisfying and not just a vacuum.

THE LIVING BODY: A Text in Human Physiology—Charles Herbert Best and Norman Burke Taylor—*Holt*, 3d ed., 792 p., illus., \$5.50. This new edition of a popular text has two chapters and others revised and enlarged. New material is included on use of radioactive isotopes and "sulfa" drugs and antibiotics.

MEASUREMENT OF GAS LAW DEVIATIONS WITH BEAN AND BURNETT APPARATUS—O. T. Bloomer—*Institute of Gas Technology*, 12 p., illus., paper, \$2.00. This comparative study shows that the Bean equipment is cheaper, but the Burnett is easier to operate and more rugged.

A METHOD OF MEASURING INCREASE IN SOIL DEPTH AND WATER-STORAGE CAPACITY DUE TO FOREST MANAGEMENT—George R. Trimble, Jr.—*Northeastern Forest Experiment Station*, 8 p., paper, free upon request to publisher, 102 Motors Avenue, Upper Darby, Pa. Because of their location in steep headwaters regions, forest soils are of special importance in flood control.

MINUTES OF THE CONFERENCE ON THE EFFECTS OF EARLY EXPERIENCE ON MENTAL HEALTH—J. P. Scott, Ed.—*Roscoe B. Jackson Memorial Laboratory*, 45 p., illus., paper, free upon request to publisher, Box 847, Bar Harbor, Maine. Reports of informal discussions by active workers in the field who were divided into committees so as to afford each the maximum opportunity for expression.

PACIFIC COAST EARTHQUAKES—Perry Byerly—*Oregon State System of Higher Education*, 38 p., illus., paper, 75 cents. These Condon lectures tell where and when Pacific Coast quakes have occurred and what can be done to prevent destruction of buildings.

PETROLEUM THEN AND NOW—Paul D. Foote—*Mellon Institute*, 12 p., illus., paper, free upon request to publisher, 4400 Fifth Ave., Pitts-

burgh 13, Pa. A resume of petroleum research from the time when Edwin Drake drilled the first oil well in 1859.

PHYSICAL-CHEMICAL PROPERTIES OF METHANE-NITROGEN MIXTURES—O. T. Bloomer and J. D. Parent—*Institute of Gas Technology*, 35 p., illus., paper, \$3.50. Data necessary for the engineering design of plants to separate nitrogen from natural gas.

THE STEAM-BENDING OF BEECH—Frederick F. Wangaard—*Northeastern Forest Experiment Station*, 26 p., illus., paper, free upon request to publisher 102 Motors Avenue, Upper Darby, Pa. Explaining the old art of wood bending so important in boat building and the making of bent wood furniture.

A TEXTBOOK OF QUANTITATIVE ANALYSIS—Andrew Patterson, Jr. and Henry C. Thomas—*Holt*, 500 p., illus., \$4.25. Written because of the author's conviction that it is not because of complicated matters that chemistry gives the student trouble but because trouble is anticipated where none, in fact, exists.

YEAR'S BEST SCIENCE FICTION NOVELS 1952—Everett F. Bleiler and T. E. Dikty, Eds.—*Fell*, 351 p., \$3.50. The first of a new series of collections of works too long to be included in a short-story collection and too short for separate publication.

Science News Letter, June 14, 1952

VITAL STATISTICS

Feminine Hearts Less Vulnerable to Disease

► **WOMEN'S HEARTS** are less vulnerable than men's—to disease, that is.

Figures announced by the American Heart Association, New York, show that for the past 20 years death rates for heart, blood vessel and kidney diseases have been steadily declining for women but increasing for men.

Men can take cheer from this heart fact: The average person, man or woman, faces no greater risk of dying from heart disease today than the average person did 50 years ago. Deaths from heart and blood vessel diseases have increased in numbers in the last half century, but the increase, the heart association says, is due partly to the aging of the population and partly to improved diagnosis.

Science News Letter, June 14, 1952

YOUR SKIN AND ITS CARE

By H. T. Benrman, M.D., and O. L. Levin, M.D.

Two dermatologists give you the up-to-date scientific facts. They tell you in detail exactly what to do to beautify and improve your skin, how to avoid or correct skin disorders, and how to deal with many skin problems as: Daily care of the face—allergies—cosmetics—pimples—blackheads—acne—whiteheads—cysts—boils—oily skin—dry skin—chapping—poison ivy—cold sores—hives—superfluous hair—ringworm—moles—birthmarks—scars—warts—tumors—skin cancer—excessive sweating—etc.

"The type of book to which the physician can refer his patients."—*Journal of the American Medical Association*. "Accurate, unvarnished story of practical skin care."—*Connecticut State Medical Journal*

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INVENTION

"Cool" Inventions Patented

► A NEW kind of portable ice cream freezer where an electric motor does the work usually done by the boy in the family has received a patent.

The specifically new thing about this invention is that the cover to the freezer, which contains the motor, can be put on in any position rather than in just one or two positions, as in other electrically operated freezers, according to the inventor.

His freezer is made of a plastic with a rubber gasket around the outer rim. The cover is made so the gasket grips its rim in any position. Space is left for the traditional ice and salt between the outside of the freezer and ice cream container.

Inventor is Ford Se Bastian, Chicago, who assigned his patent, 2,599,021 to the Chicago Electric Manufacturing Company, Chicago.

Snow Melter and Vaporizer

Scraping snow off roads and railroads and making it disappear into the air in the form of water vapor can be accomplished with an invention just patented. The inventor is Leonard J. Flynn, Salina, Kans., who received patent number 2,599,098.

The snow or ice is scooped up by the scraper which moves along the road. It then passes over a hot box, where it is melted into water. From the hot box, the water moves into a vaporizing coil, and the vapor is ejected into the air through an exhaust pipe.

This machine does away with piling up snow alongside highways, the inventor says.

Aid to Ice Fishing

An ice fishing flag which not only tilts upward into a vertical position when a fish bites at the bait, but also waves back and forth if the fish runs away with the bait has received a patent.

The inventor is Walter Fred, Worcester, Mass., and he received patent number 2,598,778 for his invention.

In this device, the line, which suspends through a hole in the ice, is attached to a reel. Any movement of the reel springs a lever which sends the flag up to a vertical position. A cam in contact with the reel waves the flag back and forth, if the fish runs with the bait, thus drawing the line off the reel.

Science News Letter, June 14, 1952

● RADIO

Saturday, June 21, 1952, 3:15-3:30 p.m. EDT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. M. R. Clarkson, assistant to the Agricultural Research Administrator, in charge of Defense Activities of the U. S. Department of Agriculture, discusses "Progress in Veterinary Medicine."

MEDICINE

Epilepsy Cause Seen in False Cover on Brain

► SOME CASES of epilepsy, of the kind called idiopathic because no cause is known, may be due to development of false membrane covering the brain. This theory was announced by Drs. Jonathan W. Williams and Harold Stevens of Children's Hospital, Washington, D. C., at the meeting of the American Medical Association in Chicago.

The false membrane cover is tough and inelastic. It has many blood vessels and at times it may extend roots into the brain itself. This forms a scar which may be responsible for later development of convulsive seizures, or fits.

The two doctors said that the condition is responsible for the mental and behavior retardation that follows meningitis in some cases. One of the consequences of meningitis in which pus is formed may be an accumulation of fluid beneath the outermost of the three membranes that normally cover the brain. The fluid can be removed by tapping but a tough, false membrane remains. This prevents further growth of the brain. The condition may also develop in children who have never had meningitis.

If a membrane is present, the doctors advise removing it by an operation. In some of their cases removal of this membrane is followed by a gratifying speed-up in developmental rate.

Science News Letter, June 14, 1952

PSYCHOLOGY

Emotions Affect Fertility

► THE ROLE of a woman's psychology and emotions in keeping her from becoming a mother was stressed in reports to the American Society for the Study of Sterility meeting in Chicago.

Infertility, or inability to become a mother, may be a defense reaction of the body against emotional conflicts that would be mobilized by actual childbearing, Dr. Therese Benedek of Chicago declared.

A biologic adaptation goes on with each phase of childbearing, Dr. Benedek pointed out. While this adaptation is useful in preparing the woman for motherhood and motherliness, it includes a regression to an earlier stage of emotional development.

Depression is likely to accompany such regression. And an unconscious resentment against this return to an earlier stage of development or, as some women feel, to a cow-like state during pregnancy and nursing, may cause enough conflict to block the woman's ability to have children, even when she thinks she wants them.

When a woman consults a doctor because of her inability to have children, the doctor should look for signs in her emotional make-up that might show she should not have children, just as he carefully examines her physically to be sure there is no heart or other condition that would make motherhood too much of a strain.

This opinion was given by Dr. W. S. Kroger of Evanston, Ill.

Allowing an emotionally immature woman to become fertile and have children may "open up the proverbial hornet's nest," Dr. Kroger declared. "The repercussions may result in neurotic children, broken homes and divorce."

Science News Letter, June 14, 1952

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❁ **SUN-TAN COT** made of light-weight aluminum fits into an automobile trunk when folded. Rope-lashed to the frame, the cot's fabric can be obtained in blue, green or red to blend harmoniously with lawns, beaches or patios. The cot can be adjusted for prone or semi-prone sunbathing positions.

Science News Letter, June 14, 1952

❁ **PAGING SYSTEM** for hospitals quietly buzzes persons carrying pocket-sized, battery-operated, remote-controlled receivers. A desk-sized selector triggers a stationary radio transmitter that sifts the desired doctor out of 800 doctors and nurses and buzzes him. The system has a four-mile range from the hospital.

Science News Letter, June 14, 1952

❁ **AIR DEHUMIDIFIER** for basements, closets and store rooms does not require frequent drying out. Available either in a 5- or 10-pound size, the moisture absorbent is suspended above a special pail by a wire assembly that allows air to circulate freely around the chemicals.

Science News Letter, June 14, 1952

❁ **MOISTURE BALANCE** cuts the time from hours to minutes required to measure the moisture content of commodities ranging from cereal grains to foundry sands. Expressing the moisture content in percentages, the instrument uses infra-red light to drive moisture from a five-gram sample.

Science News Letter, June 14, 1952

❁ **POCKET SLIDE RULE** actually is a mechanical pencil with a point on each end, as shown in the photograph. Six stationary



sliding scales are printed on the pencil. Three sliding scales are printed on a transparent tube which slips over the barrel. The plastic pocket clip doubles as an indicator.

Science News Letter, June 14, 1952

❁ **GLOWING LIGHT** switch plate fits over standard wall light switches and shines a pale blue-white color in the dark, making it easy to find the switch in blacked-out rooms. After exposure to light for one minute, the plate glows up to 12 hours without having to be "recharged" with more light.

Science News Letter, June 14, 1952

❁ **BATTERY CAPS** that preserve water in automobile batteries also reduce corrosion and can warn of battery overcharge by becoming too hot to touch. The sealed-in palladium catalyst converts battery gases back into water, thus maintaining the liquid at a safe level eight times longer than present-day caps.

Science News Letter, June 14, 1952

❁ **REPLACEMENT MUFFLER** for automobiles is designed to reduce exhaust noises and to minimize back pressure by using a sound-absorbing glass fiber as the muffling element. In developmental tests, the unit cut back pressure to one-fifth its normal value, thus improving engine efficiency.

Science News Letter, June 14, 1952

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Do You Know?

Young salmon swim tail-first downstream, their heads always pointed against the current.

The highest land of the Bimini Island group in the Bahama Islands is only 30 feet above sea level.

Bald eagles legally cannot be killed in Alaska unless found committing damage to wildlife or domestic stock.

When eggs are first laid, they have a protective film covering them which is known as the "bloom;" it seals the pores and helps to keep odors out of the eggs.